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REMARKS

By this amendment, claims 1, 4, 6-10, 29, 32-38, 43 and 47-64 are pending in the application. Of these, claims 1, 4, 8-10, 29, 32-33, 36, 47-48, 52-52 and 54-56 are being amended and claims 58-64 are being added. Claims 2-3, 5 and 30-31 are being canceled, and claims 11-28, 39-42 and 44-46 remain withdrawn. The amendments are fully supported by the originally filed specification and original claims and add no new matter. For example, the amendment to claim 1 to recite a "metal alloy comprising yttrium and aluminum" is supported at least by paragraph 29. Entry of the amendments and reconsideration of the present case is respectfully requested.

Allowable Subject Matter

Applicants appreciate the Examiner's indication that claim 51 would be allowable if re-written to overcome the 35 U.S.C. 112, second paragraph rejection. Applicants also appreciate the Examiner's indication that claims 52-53 would be allowable if re-written to overcome the rejections under 35 U.S.C. 112, second paragraph, and to include all the limitations of their base claims and any intervening claims. Claim 51 is being amended to overcome the rejection under 35 U.S.C. 112, second paragraph, and thus this claim and the claims depending therefrom are believed to be allowable.

Applicants also acknowledge and appreciate the Examiner's conclusion that the subject matter of claims 51-53 are not taught or suggested by the references of record.

Applicants appreciate the Examiner's indication that claim 38 would be allowable in re-written in independent form and including all of the limitations of the base claim. Claim 48 is being amended to present claim 38 in independent form and including the limitations of claim 36, from which claim 38 depends. Accordingly, claim 48 and the claims depending therefrom are believed to be allowable.

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Claim Objections

The Examiner objected to claims 54 and 55 under 37 C.F.R. 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 1 and 29, from which these claims depnd, have been amended to cancel "integral" from the claims. Accordingly, claims 54 and 55 further limit these independent claims by reciting that the component is absent, or in other words does not have, a discrete boundary between the surface coating and the metal alloy.

Rejection Under 35 U.S.C. 112, First Paragraph, of Claims 1, 2, 5-10, 29, 30, 33, 35, 47 and 54-57

The Examiner rejected claims 1, 2, 5-10, 29, 30, 33, 35, 47 and 54-57 under 35 U.S.C. 112, first paragraph for failing to comply with the written description requirement. This rejection is traversed.

The Examiner rejected these claims under 35 U.S.C. 112, first paragraph, on the grounds that the support in the specification for the "metal structure" recited in the claims is unclear. The phrase "metal alloy" is being amended to recite "metal alloy comprising yttrium and aluminum," as was suggested by the Examiner in the telephone conversation on May 28th, 2004. This phrase is supported at least by paragraph 29 of the specification, which recites that "the component 114 comprises a metal alloy comprising yttrium and aluminum." Accordingly, claims 1, 2, 5-10, 29, 30, 33, 35, 47 and 54-57 are fully supported by the specification, and the rejection of these claims under 35 U.S.C. 112, first paragraph, should be withdrawn.

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Rejection Under 35 U.S.C. 112, Second Paragraph, of Claims 1, 2, 5, 8, 29, 30, 33, 43, 47 and 51-56

The Examiner rejected claims 1, 2, 5, 8, 29, 30, 33, 43, 47 and 51-56 under 35 U.S.C. 112, second paragraph, as being indefinite. This rejection is traversed.

The Examiner rejected claims 1, 2, 5, 8, 29, 30, 33, 43, 47, 51, 52 and 56 for reciting the phrase "integral surface coating" because the Examiner claims that the term "integral" was unclear. The phrase "integral surface coating" is being amended to "anodized surface coating formed by applying an electrical bias power" in claim 1, and claims 29 and 51 are being amended to replace the phrase with "surface coating." Accordingly, as the claims no longer recite an "integral" coating, the rejection of these claims and the claims depending therefrom under 35 U.S.C. 112, second paragraph, is obviated.

The Examiner rejected claims 2, 30 and 52 because the Examiner felt the phrase "anodized coating" is unclear. Claims 2 and 30 are being canceled, and thus the rejection of these claims is obviated. Claim 52 is being amended to recite an "anodized surface coating formed by applying an electrical bias power" (emphasis added.) This amendment is supported at least by paragraph 36 of the specification, which discloses applying an electrical bias power to form the anodized coating. Accordingly, the claims clearly express the subject matter being claimed, namely an anodized surface coating that is formed by the application of an electrical bias power, and claim 52 should not be rejected under 35 U.S.C. 112, second paragraph.

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The Examiner rejected claims 54 and 55 for reciting the phrase "is absent a discrete boundary," because the Examiner stated that it was "unclear how this limitation is further limiting of an 'metal structure having an integral surface coating.'" Claims 1 and 29, from which these claims depend, have been amended to cancel "integral" from the claims. Accordingly, claims 54 and 55 further limit the independent claims by reciting that the component is absent, or in other words does not have, a discrete boundary between the surface coating and the metal alloy.

Rejection Under 35 U.S.C. 102 of Claims 1-10, 43, 54, 56 and 57

Jackson et al

The Examiner rejected claims 1-3, 5, 6, 8, 43, 56 and 57 under 35 U.S.C. 102(a and e) as being anticipated by U.S. Patent No. 6,287,644 to Jackson et al. This rejection is traversed.

Claim 1 is not anticipated by Jackson et al. because Jackson et al. does not teach "a substrate processing chamber component capable of being exposed to a RF or microwave energized gas in a substrate processing chamber; the component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," as recited in the claim. Instead, Jackson et al. discloses that "formation processes (manufacturing methods) for the continuously graded bond coat include, but are not limited to, electron beam (EB) evaporation and deposition processes." (column 6, lines 22-25.) Thus, Jackson et al. discloses a coating formed by, for example, a deposition process, but does not teach or suggest a metal alloy comprising yttrium and aluminum and having an anodized surface coating, as in the claim.

Jackson et al. also discloses "aluminide-based bond coat on articles exposed to high temperatures, such as components of turbines and engines" (emphasis

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added, column 1, lines 13-15.) Thus, Jackson et al. discloses a bond coat for a turbine or engine in which high temperatures occur, but does not teach a component for a substrate processing chamber that is exposed to an energized gas formed by coupling RF or microwave energy. Moreover, a turbine or engine does not process a substrate. A substrate is a separate physical structure, such as for example, a semiconductor wafer, display, and other such structures, that is inserted in the chamber to be processed. A substrate is not inserted in the turbine or engine for processing. Thus, a turbine or engine is not a substrate process chamber. Accordingly, claim 1 and the claims depending therefrom are not anticipated by Jackson et al.

Goward et al

The Examiner rejected claims 1-3, 5, 6, 8, 56 and 57 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,758,903 to Goward et al. This rejection is traversed.

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Claim 1 is not anticipated by Goward et al. because Goward et al. does not teach "a substrate processing chamber component capable of being exposed to a RF or microwave energized gas in a substrate processing chamber, the component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," as recited in the claim. Goward et al. discloses "a coating alloy for the gas turbine engine super-alloys" (abstract.) Goward et al. does not teach a metal alloy comprising yttrium and aluminum and having an anodized surface coating, as in the claim. Goward et al. also discloses that the coating is suitable for a gas turbine engine that is used, for example, to propel a jet airplane, but does not teach a component for a substrate processing chamber that is capable of being exposed to a RF or microwave energized gas. A turbine or engine does not process separate physical substrate structures. Accordingly, as Goward et al. does not teach the substrate processing chamber component recited in the claim, and claim 1 and the claims depending therefrom are not anticipated by Goward et al.

Aguero et al

The Examiner rejected claims 1-5, 8, 56 and 57 under 35 U.S.C. 102(b) as being anticipated by U.S Patent No. 5,807,613 to Aguero et al. This rejection is traversed.

Claim 1 is not anticipated by Aguero et al. because Aguero et al. does not teach "a substrate processing chamber component capable of being exposed to a RF or microwave energized gas in a substrate processing chamber, the component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," as recited in the claim. Aguero et al. discloses that "methods currently used to deposit MCRAIY overlay coatings include electron beam vapor deposition, plasma spraying, and

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other physical vapor deposition techniques" (column 1, lines 50-52.) Aguero does not teach a metal alloy comprising yttrium and aluminum and having an anodized surface coating, as in the claim.

Aguero et al. further discloses a coating for the "high temperatures and corrosive environment characteristic of operating gas turbines" (column 1, lines 23-24) and "corrosive environments such as coal gasification systems, furnace fixtures, heating elements, heat exchangers, components for automotive and fossil energy applications as well as for nuclear reactors, chemical processing equipment and molten carbonate fuel cells" (column 1, lines 29-33.) However, Aguero et al. does not disclose a component having a coating that is a part of a chamber that processes substrates and that is thus capable of being exposed to a RF or microwave energized gas. Accordingly, as Aguero et al. does not teach the recited substrate processing chamber component having the anodized surface coating, claim 1 and the claims depending therefrom are not anticipated by Aguero et al.

Morita et al

The Examiner rejected claims 1-8, 54, 56 and 57 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application No. 2002/0012791 to Morita et al. This rejection is traversed.

Claim 1 is not anticipated by Morita et al. because Morita et al. does not teach or suggest a component "comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," (emphasis added) as recited in the claim. Instead, Morita et al. discloses "a ceramics material characterized by comprising a base material substantially made of a sintered body of alumina and a yttrium-aluminum-garnet (YAG) layer having a thickness of 2 μ m or more which is formed on a surface of the base material" (paragraph 13.) Thus, Morita et al. discloses a ceramic base, namely alumina,

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that has a YAG layer, but does not teach a metal alloy having an anodized surface coating. The Examiner argues that "the aluminum in the ceramic is metal" in the disclosure of Morita et al. However, a ceramic material that is made from a compound having an metal element, such as aluminum oxide, is not the same as a metal alloy. A metal alloy is made up of and has the properties of metals, such as the metal alloy described in paragraph 29 of the specification, as is clear to one of ordinary skill in the art. One of ordinary skill in the art would not consider the ceramic base of Morita et al. to be a metal alloy, as the ceramic base would typically have properties that are different than those of structures formed of metal, including different electrical properties and different ductility. Morita et al. furthermore does not teach forming an anodized surface coating on a metal alloy. Accordingly, as Morita et al. does not teach the component comprising the metal alloy of the claim, claim 1 and the claims depending therefrom are not anticipated by Morita et al.

Murakawa et al

The Examiner rejected claims 1-10, 54, 56 and 57 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,447,937 to Murakawa et al. This rejection is traversed.

Claim 1 is not anticipated by Murakawa et al. because Murakawa et al. does not teach a "component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," (emphasis added) as recited in the claim. Instead, Murakawa et al. discloses " a corrosion-resisting ceramic material having high resistance to corrosive halogen-based gases" (column 1, lines 7-9.) Thus, Murakawa et al. discloses a ceramic material, but does not teach a metal alloy having an anodized surface coating. As discussed above, a ceramic material that is made up of a compound having a metal element is not the same as a metal alloy, as a ceramic material typically does not have the same properties as that of metal alloy. Murakawa

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et al. furthermore does not teach forming an anodized surface coating comprising a yttrium-aluminum compound on a metal alloy. Accordingly, claim 1 and the claims depending therefrom are not anticipated by Murakawa et al.

Rejection Under 35 U.S.C. 103(a) of Claims 1-10, 29-37, 48-50 and 55-57

Goward et al

The Examiner rejected claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Goward et al. This rejection is traversed.

Claim 1, from which claims 9 and 10 depend, is patentable over Goward et al. because Goward et al. does not teach or suggest a "component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, the anodized surface coating comprising an yttrium-aluminum compound," as recited in the claim. Instead, as discussed above, Goward et al. discloses "a coating alloy for the gas turbine engine super-alloys" (abstract), but does not teach or suggest a metal alloy comprising yttrium and aluminum and having an anodized surface coating, and also does not teach or suggest the benefits of such a component. Accordingly, claim 1 and the claims depending therefrom are patentable over Goward et al.

Furthermore, Goward et al. does not teach or suggest providing such a component as a part of a substrate processing chamber that is "capable of being exposed to a RF or microwave energized gas in a substrate processing chamber," as recited in the claim. Instead, as discussed above, Goward et al. discloses "a coating alloy for the gas turbine engine super-alloys," (abstract) but does not teach or suggest a component for a substrate processing chamber that is exposed to a RF or microwave energized gas as recited in the claim.

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Components that are suitable for an engine environment are non-analogous to those required in the substrate processing chambers that process substrates in RF and microwave energized gases, such as semiconductor substrates, and one of ordinary skill in the art of such substrate processing would not find it obvious to provide an engine component as a part a substrate processing chamber. A gas turbine engine environment is developed for the flow of propulsion gases. In contrast, a substrate processing environment that processes a substrate in a RF or microwave energized gas is developed for the purpose of processing a substrate to achieve a predetermined and desired result on that substrate, such as the deposition of a layer on the substrate in a deposition process, or the removal of specific portions of the substrate in an etching process. To achieve the desired processing results on the substrate it is important to provide a suitable chamber environment, such as an environment that maintains very low levels of substrate contamination as well as minimizes the chemical reaction of chamber components with the highly corrosive gases, such as halogenated gases and energized ionic and radical species, that are often used in substrate etching and chamber cleaning processes. These requirements are also described in the background section of the specification. Thus, as an engine environment does not process a substrate to achieve a predetermined result, and also does not do so in a RF or microwave energized gas environment, a component that is suitable for use in an engine environment could provide undesirable results in a process chamber, such as unacceptable levels of contamination on the substrate or undesirable reactions with a halogenated etching or cleaning gas. Accordingly, one of ordinary skill in the art would not find it obvious to provide an engine component as a part of a substrate processing chamber, and claim 1 and the claims depending therefrom are patentable over Goward et al.

Jackson et al

The Examiner rejected claims 9, 10, 36, 37 and 48-50 under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. This rejection is traversed.

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Claim 1, from which claims 9 and 10 depend, is patentable over Jackson et al. because Jackson et al. does not teach or suggest "a substrate processing chamber component capable of being exposed to a RF or microwave energized gas in a substrate processing chamber, the component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," as recited in the claim. Instead, as discussed above, Jackson et al. discloses that "formation processes (manufacturing methods) for the continuously-graded bond coat include, but are not limited to, electron beam (EB) evaporation and deposition processes." (column 6, lines 22-25), but Jackson et al. does not teach or suggest providing a metal alloy comprising yttrium and aluminum and having an anodized surface coating, as in the claim, and also does not teach or suggest any benefits of such a component. Accordingly, claim 1 and the claims depending therefrom are patentable over Jackson et al.

Furthermore, Jackson et al. does not teach or suggest providing such a component as a part of a substrate processing chamber that is "capable of being exposed to a RF or microwave energized gas in a substrate processing chamber," as recited in the claim. Instead, Jackson et al. discloses "aluminide-based bond coat on articles exposed to high temperatures, such as components of turbines and engines" (emphasis added, column 1, lines 13-15), but does not teach or suggest a component for a substrate processing chamber that is capable of being exposed to a RF or microwave energized gas, and thus the gas turbine and engine disclosures of Jackson et al. are non analogous to the claimed substrate processing chamber component.

Furthermore, a component suitable for a substrate processing chamber that uses a RF or microwave energized gas is not obvious from a disclosure of a turbine because, as described above, the substrate processing chamber environment has energized gas species, such as RF or microwave energized ionic and radical species, and gas compositions such as etching and cleaning gases, that are other than those found in a gas turbine environment. As such, a component that has corrosion

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resistance in a gas turbine environment would not obviously have corrosion resistance in a substrate processing chamber environment, and also would not obviously provide a sufficient level of corrosion resistance to reduce contamination of substrates being processed in the chamber. Accordingly, as Jackson et al. does not teach or suggest the substrate processing chamber component of claim 1, claim 1 and the claims depending therefrom are patentable over Jackson et al.

Claim 36 is patentable over Jackson et al. because Jackson et al. does not teach or suggest "a component for a substrate processing chamber that is capable of being exposed to a RF or microwave energized gas," as recited in the claim. Instead, as discussed above, Jackson et al. discloses a component for turbines and engines, but does not teach or suggest a component for the recited substrate processing chamber. Jackson et al. furthermore does not teach or suggest a component comprising a "coating comprising yttrium-aluminum oxide having a compositional gradient through a thickness of the coating," as in the claim. Accordingly, claim 36 and the claims depending therefrom are patentable over Jackson et al.

Claim 48 corresponds to objected to claim 38 re-written in independent form and including all of the limitations of its base claim, and thus is believed to be allowable over the cited references. Furthermore, claim 48 recites "a component for a substrate processing chamber that is capable of being exposed to a RF or microwave energized gas," and a "coating comprising yttrium-aluminum oxide having a compositional gradient through a thickness of the coating, the yttrium-aluminum oxide comprising YAG." Thus this claim and the claims depending therefrom are similarly patentable over Jackson et al because Jackson et al does not teach or suggest the benefits of providing the recited component as a part of a substrate processing chamber, and also does not teach or suggest a coating comprising YAG and having a compositional gradient.

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Aguero et al

The Examiner rejected claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Aguero et al. This rejection is traversed.

Claim 1, from which claims 9 and 10 depend, is patentable over Aguero et al. because Aguero et al. does not teach or suggest "a substrate processing chamber component capable of being exposed to a RF or microwave energized gas in a substrate processing chamber, the component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," (emphasis added) as recited in the claim. Instead, as discussed above, Aguero et al. discloses that "methods currently used to deposit MCrAlY overlay coatings include electron beam vapor deposition, plasma spraying, and other physical vapor deposition techniques" (column 1, lines 50-52.) Thus, Aguero et al. does not teach or suggest a metal alloy comprising yttrium and aluminum and having an anodized surface coating, as in the claim, and furthermore does not teach or suggest the benefits of such a component. Accordingly, claim 1 and the claims depending therefrom are patentable over Aguero et al.

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Furthermore, Aguero et al. discloses a protective coating for the "high temperatures and corrosive environment characteristic of operating gas turbines" (column 1, lines 23-24) and "corrosive environments such as coal gasification systems, furnace fixtures, heating elements, heat exchangers, components for automotive and fossil energy applications as well as for nuclear reactors, chemical processing equipment and molten carbonate fuel cells" (column 1, lines 29-33.) Aguero et al. does not teach or suggest a component for a substrate processing chamber in which substrates are processed in a RF or microwave energized gas, for example, to etch features or deposit material on the substrates, which component is thus capable of being exposed to a RF or microwave energized gas. Instead, Aguero et al. discloses applications that are non-analogous to such a substrate processing chamber component.

Furthermore, the claimed component is not obvious over Aguero et al. because it would not be obvious to one of ordinary skill in the art that the component of Aguero et al. would be suitable for the processing of a substrate in a chamber. As described in the background section of the specification, a substrate processing chamber component that processes substrates in a RF or microwave energized gas should meet certain requirements specific to the processing of substrates. For example, the component should be resistant to corrosion by energized gases used in chamber processes, such as for example RF or microwave energized etching gases such as CF₄, cleaning gases and deposition gases, which gases can comprise energized ionic and radical species that can aggressively chemically react and physically bombard and etch components. Aguero et al. discloses protection against, for example, the corrosive environment of gas turbines and the environment of chemical processing equipment, but does not disclose that these environments involve exposure to, for example, RF or microwave energized ionic or radical corrosive gas species, and thus does not teach or suggest that the coated component would be suitable for use in a substrate processing chamber.

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Also, as described in the background section of the specification, the corrosion resistance of the substrate processing chamber component in the RF or microwave energized gas environment should be sufficiently high such that contamination of a substrate does not arise from falling or flaking of component material onto the substrate. Thus, a level of corrosion resistance is required not only to protect the component, but also the level should be sufficiently high to avoid contamination of the substrate. Aguero et al. discloses protective part coatings "to maintain the mechanical integrity of the part" (column 1, lines 17-28), such as for example a gas turbine coating that protects the turbine itself, but Aguero et al. does not disclose that the coating has a sufficiently high corrosion resistance that would reduce flaking of material and contamination of a substrate during processing, and in particular does not disclose that sufficient corrosion resistance exists upon exposure of the coating to the types of energized gases used in substrate processing. Accordingly, as Aguero et al. does not teach or suggest the recited substrate processing chamber component, claim 1 and the claims depending therefrom are patentable over Aguero et al.

Morita et al

The Examiner rejected claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Morita et al. This rejection is traversed.

Claim 1, from which claims 9 and 10 depend, is patentable over Morita et al. because Morita et al. does not teach or suggest a "component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound," (emphasis added) as recited in the claim. Instead, as discussed above, Morita et al. discloses a ceramic base, namely alumina, that has a YAG layer, but does not teach a metal alloy having an anodized surface coating. A ceramic base is not the same as a metal alloy, as structures formed of ceramics have different properties than those made up of metals, as is known to those of ordinary skill in the art. The claimed component is

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furthermore not obvious over Morita et al., because Morita et al. does not teach or suggest any benefits of providing the recited metal alloy having an anodized surface coating, and furthermore does not teach or suggest any method of forming a metal alloy having an anodized surface coating. Morita et al. discloses that yttrium is added to an alumina powder mixture to "generate required YAG which is exuded to and deposited on the surface of the sintered body of alumina and improve plasma resistance" (paragraph 40.) Thus, Morita et al. discloses sintering a ceramic having yttria to form a protective layer of YAG thereover, but does not teach or suggest forming an anodized surface coating having resistance to erosion on a metal alloy, and does not even teach or suggest the desirability of providing coating on a metal alloy. Accordingly, claim 1 and the claims depending therefrom are patentable over Morita et al.

Murakawa et al

The Examiner rejected claims 1-10 under 35 U.S.C. 103(a) as being unpatentable over Murakawa et al. This rejection is traversed.

Claim 1 is patentable over Murakawa et al. because Murakawa et al. does not teach or suggest a "component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound" (emphasis added) as recited in the claim. Instead, Murakawa et al. discloses "a corrosion-resisting ceramic material having high resistance to corrosive halogen-based gases" (column 1, lines 7-9.) Thus, Murakawa et al. discloses a ceramic material, but does not teach a metal alloy having a coating. Furthermore, Murakawa et al. does not disclose a structure having an anodized surface coating, and instead discloses a window member "in the form of a transparent substrate of, for example, glass or sapphire having a surface to which a thin YAG sintered body is applied" (column 13, lines 59-62.) Thus, Murakawa discloses applying a sintered YAG ceramic to a surface to find a coating, but does not teach forming an anodized coating on a metal alloy. The claimed component is furthermore not obvious over Murakawa et

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al, because Murakawa et al. does not teach or suggest any benefits of providing a metal alloy having an anodized surface coating, and furthermore does not teach or suggest any method of forming a metal alloy having an anodized surface coating that provides benefits such as erosion resistance. Accordingly, claim 1 and the claims depending therefrom are patentable over Murakawa et al.

Hollars and Morita et al

The Examiner rejected claims 29-35 and 55 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,365,010 to Hollars in view of Morita et al. This rejection is traversed.

Claim 29 is patentable over Hollars and Morita et al. because the references do not teach or suggest a substrate processing apparatus "wherein one or more of the process chamber wall, substrate support, substrate transport, gas supply, gas energizer and gas exhaust, comprises a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, wherein the anodized surface coating comprises an yttrium-aluminum compound." (emphases added) as recited in the claim. Hollars generally discloses "a sputtering apparatus" (abstract.) However, as stated by the Examiner in the Office Action mailed on July 9 , 2003, "Hollars does not teach the claimed Y-Al coating." Morita et al. does not make up for the deficiencies of Hollars because, as described above, Morita et al. does not teach or suggest a coating of an yttrium-aluminum compound that is on a metal alloy, and instead discloses a ceramic base having an overlying YAG layer. Furthermore, neither Hollars or Morita et al. teach or suggest providing a component comprising an anodized surface coating. Accordingly, as neither Hollars or Morita et al. teach or suggest the recited metal alloy having the anodized surface coating, claim 29 and the claims depending therefrom are patentable over Hollars in view of Morita et al.

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Hollars and Murakawa et al

The Examiner rejected claims 29-35 and 55 under 35 U.S.C. 103(a) as being unpatentable over Hollars in view of Murakawa et al. This rejection is traversed.

Claim 29 is patentable over Hollars and Murakawa et al. because the references do not teach or suggest the recited metal alloy having the anodized surface coating comprising the yttrium-aluminum compound. Hollars discloses "a sputtering apparatus" (abstract) but, as stated by the Examiner in the Office Action mailed on July 9, 2003, "Hollars does not teach the claimed Y-Al coating." Murakawa et al. does not make up for these deficiencies. As discussed above, Murakawa et al. discloses a ceramic material, but does not teach or suggest a metal alloy having a coating. Furthermore, Murakawa et al. does not teach or suggest a metal alloy having an anodized surface coating, and instead discloses a window member "in the form of a transparent substrate of, for example, glass or sapphire having a surface to which a thin YAG sintered body is applied" (column 13, lines 59-62.) Thus, Murakawa et al. discloses applying a sintered YAG ceramic to a surface to form a coating, but does not teach forming an anodized surface coating on a metal alloy. Furthermore, as Murakawa et al. discloses that the substrate is "transparent," one of ordinary skill in the art would have been taught away from forming a coating on a metal alloy that is non-transparent. Accordingly, as Hollars and Murakawa et al. do not teach or suggest the recited metal alloy having the anodized surface coating, claim 29 and the claims depending therefrom are patentable over Hollars in view of Murakawa et al.

Otsuki

The Examiner rejected claims 1, 2, 6-10, 29, 30, 34, 35, 56 and 57 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2001/0003271 to Otsuki. This rejection is traversed.

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Claim 1 is patentable over Otsuki because Otsuki does not teach or suggest a "component comprising a metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, the anodized surface coating comprising an yttrium-aluminum compound," (emphasis added) as recited in the claims. Instead, Otsuki discloses that "the film 14 containing a compound of a III-a element is a sprayed film." (emphasis added, paragraph 43.) Thus, Otsuki discloses a film that is applied via a spraying method to a component, but does not teach or suggest providing an anodized surface coating on a metal alloy comprising yttrium and aluminum, and also does not teach or suggest the benefits of providing such a coated component. Accordingly, claim 1 and the claims depending therefrom are patentable over Otsuki.

Claim 29 similarly recites "metal alloy comprising yttrium and aluminum, the metal alloy having an anodized surface coating formed by applying an electrical bias power to the metal alloy, the anodized surface coating comprising an yttrium-aluminum compound," (emphasis added) and thus this claim and the claims depending therefrom are also patentable over Otsuki because Otsuki does not teach or suggest an anodized surface coating on a metal alloy comprising yttrium and aluminum.

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CONCLUSION

The above-discussed amendments are believed to place the present application in condition for allowance. Should the Examiner have any questions regarding the above remarks, the Examiner is requested to telephone Applicant's representative at the number listed below.

Respectfully submitted,

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Date: June 1, 2004

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